

Introducing the Living Well Within Limits Project

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With huge intellectual boosting from: William Lamb, Lina Brand Correa, Elke Pirgmaier, Ian Gough, John O'Neill, Dan O'Neill, Giulio Mattioli, Andrew Brown, Jouni Paavola, Jonathan Busch, Saamah Abdallah, Katherine Trebeck, Kate Raworth, Jonathan Cullen, Marlyne Sahakian, Monica Guillen-Royo, Henrike Rau, Shonali Pachauri, Narasimha Rao, Timmons Roberts & many others.

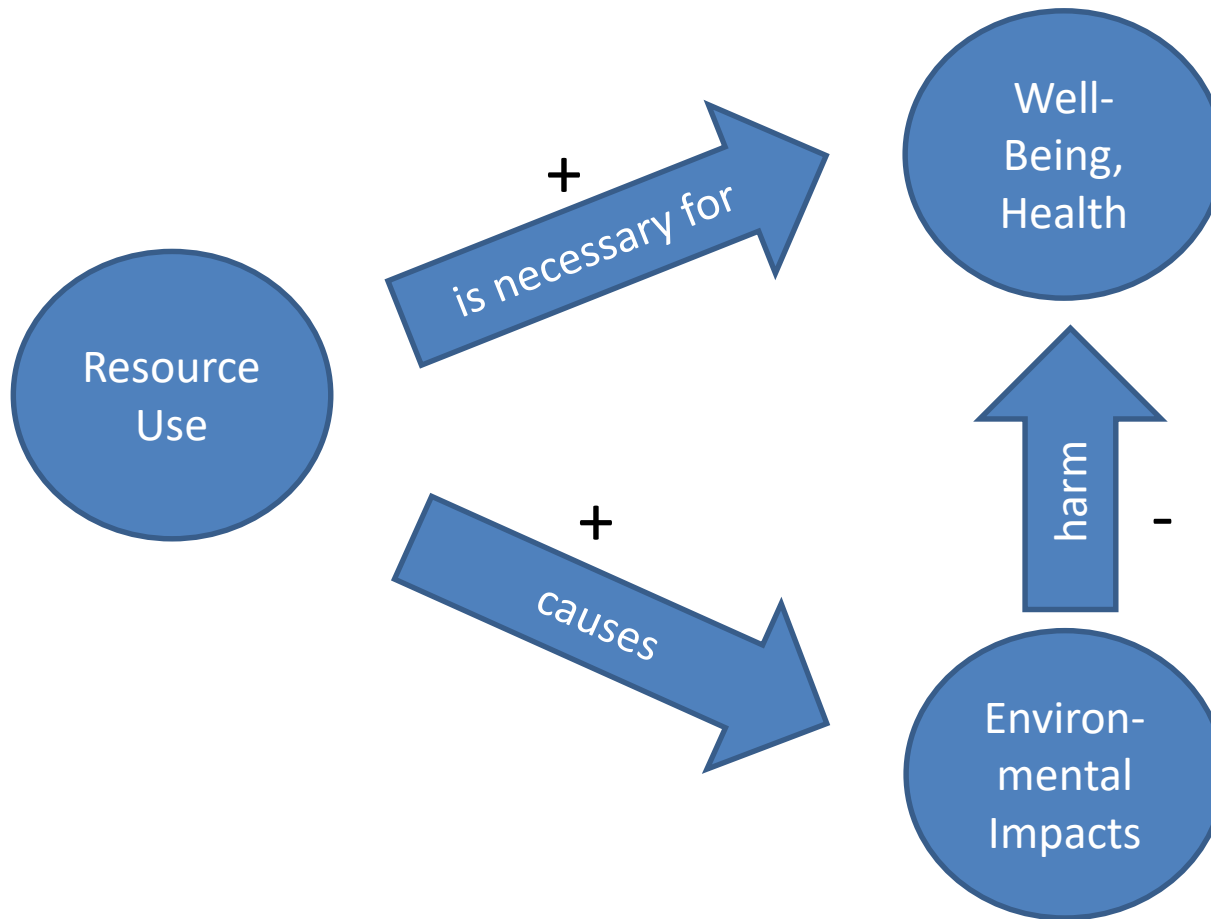


Outline

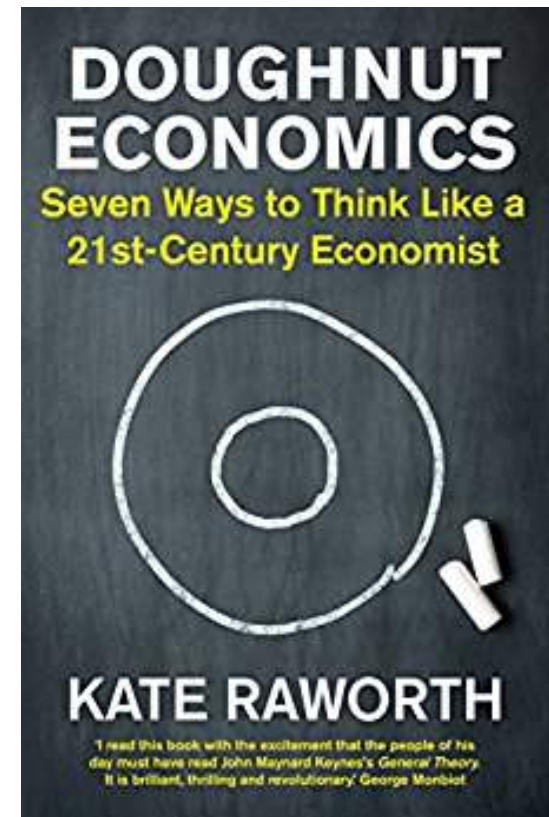
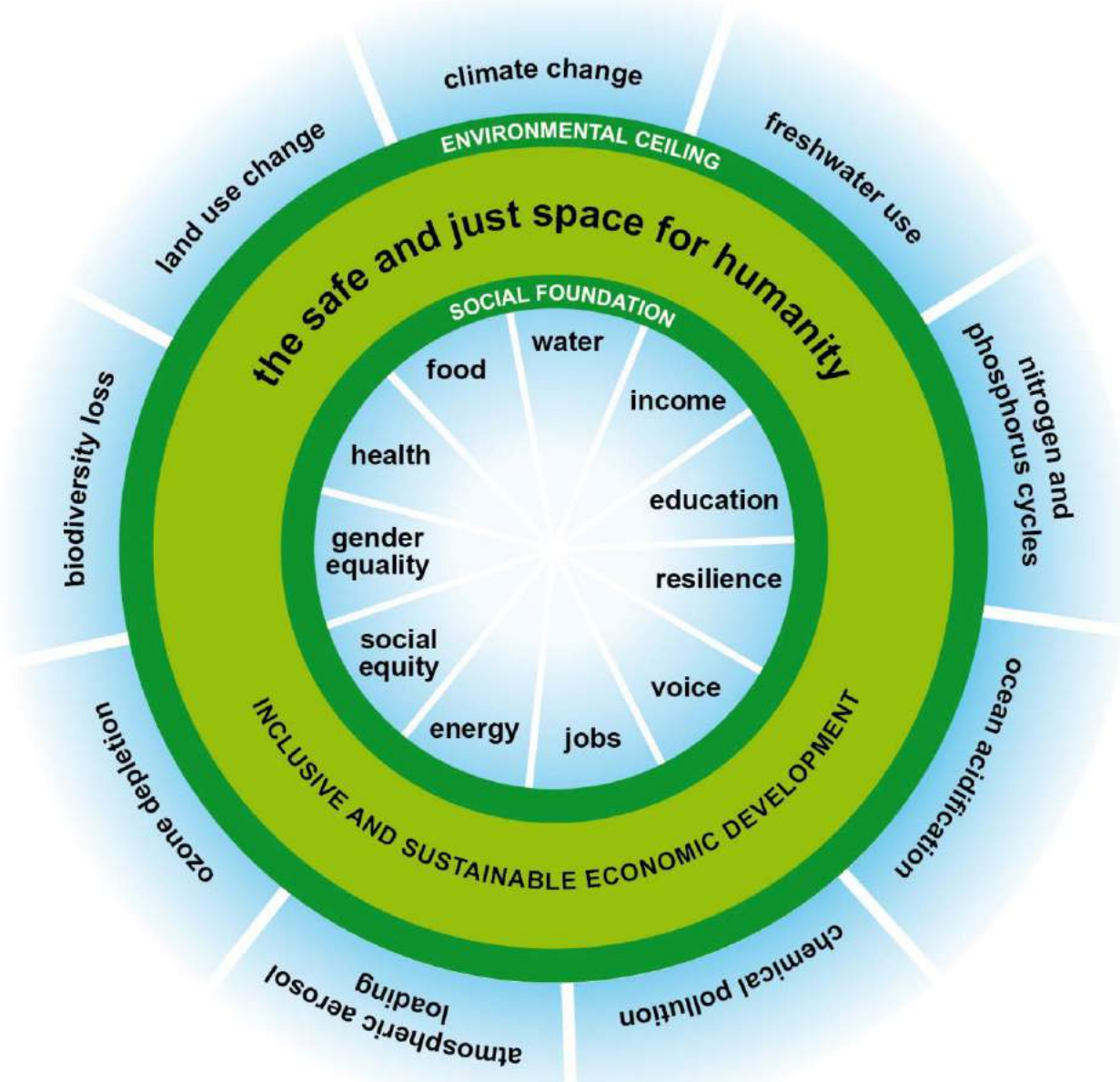
- Why? context of energy, well-being in sustainability research
- LiLi's research questions
- The plan
 - LiLi's research program, and moving forward as a research community

WHY?

Energy \Leftrightarrow well-being linkage is central to sustainability research.



Important to understand how to get & stay within KR's doughnut.

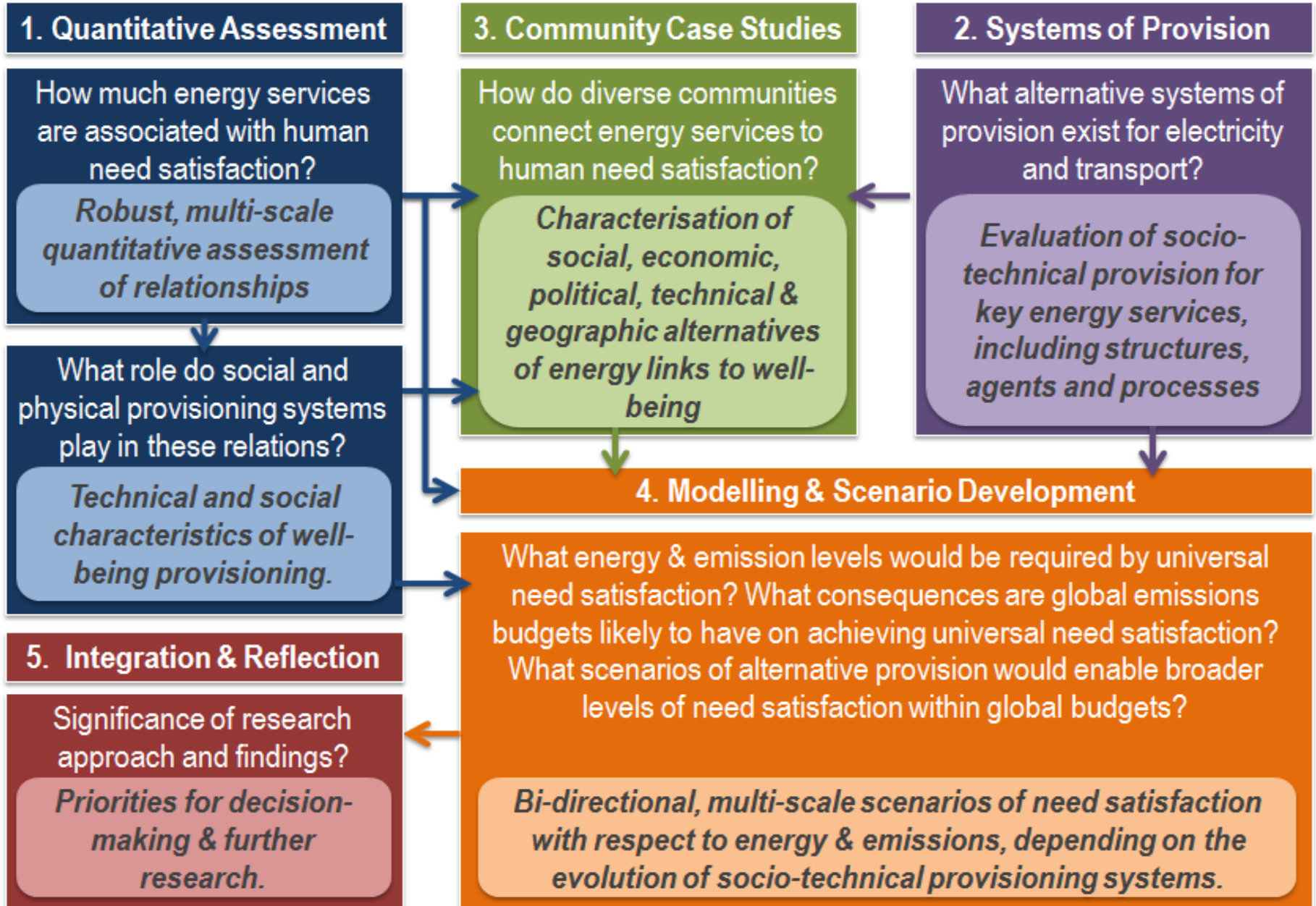




LiLi Research Questions

Research questions	Analytic approach
[1] What are the biophysical resources, more specifically energy , required to achieve human well-being ?	Quantitative, empirical, comparative analysis: econometric & industrial ecology toolkit.
[2] What influence do social and technical provisioning systems have on the levels of resource use associated with well-being?	Qualitative, empirical, comparative analysis: political economy, participatory & fieldwork toolkit.
[3] If remaining within planetary boundaries requires rapid decreases in resource & energy use, how could these scarce resources best be employed to enhance and preserve well-being ?	Scenarios & modelling: participatory scenario development, systemic quantitative modelling.

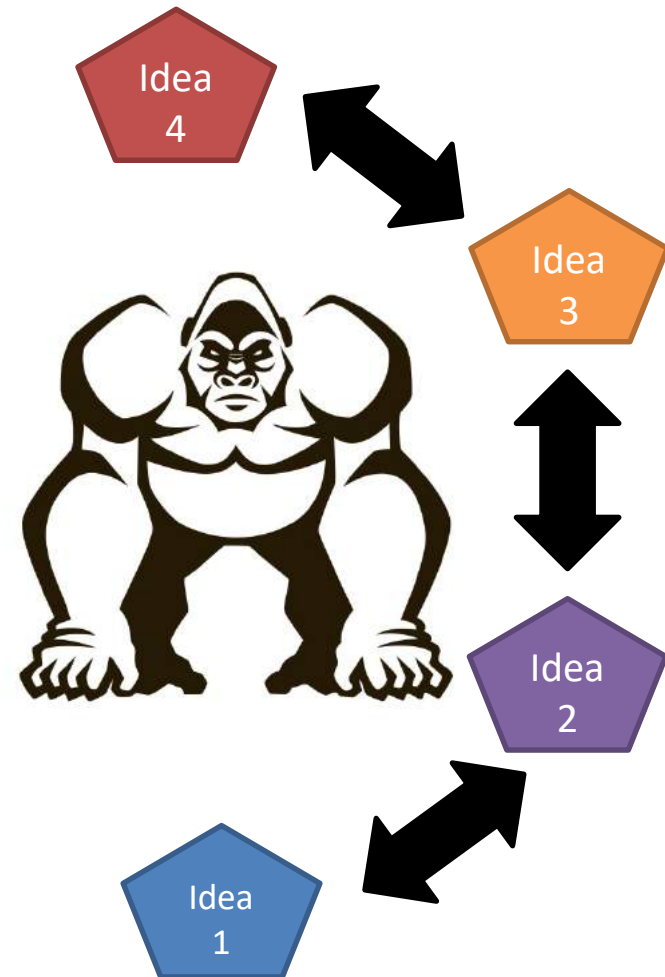
LiLi research questions and outcomes



HOW: Ideas that form the basis of the “Living Well Within Limits (LiLi)” project

Stepping stones in a conceptual pathway around mainstream economics

1. **Needs**-based understanding of human well-being;
2. **“Satisfiers”** of human needs as flexible, culturally & historically specific;
3. **Provisioning systems** and heterodox economic view of supply chains;
4. **Energy services** rather than energy supply.



Needs-based understanding of well-being

1. Well-being is long-established area of thought and research with many disciplinary perspectives and many assessment methods.
2. Following J. O'Neill 2012, Gough 2015, ?2017? needs-based approaches enable intergenerational comparison (“universality” claim) and satiability, and are thus best suited to sustainability research.

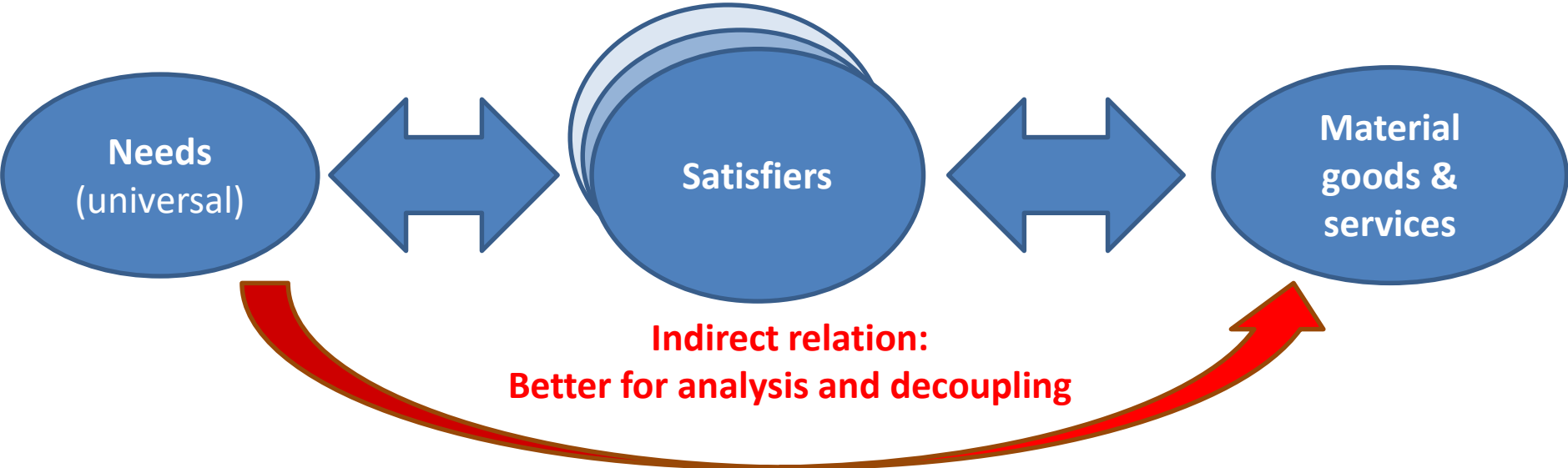
	<p style="color: red;">Most suited to sustainability research, social focus</p>	<p style="color: blue;">Dominant in policy & research, individual focus</p>
Well-being assessment	Eudaimonic (flourishing)	Hedonic (maximising pleasure, minimising pain)
Objective and/or non-individual	<ul style="list-style-type: none"> ➤ Outcomes: health, education, political participation, etc. ➤ Means (satisfiers): public expenditure budgets on health & education, available infrastructure and vital services. ➤ Community participatory methods. 	<ul style="list-style-type: none"> ➤ Income & expenditure studies (well-being as maximising utility through consumption, as making choices given budgetary constraints).
Individual & subjective	<ul style="list-style-type: none"> ➤ Evaluative assessment 	<ul style="list-style-type: none"> ➤ Happiness (satisfaction with life)

Gough & Max-Neef: **satisfiers** as intermediates between needs and material goods (=environmental impacts)

Conventional economics:



Human-Scale Development & Human Needs

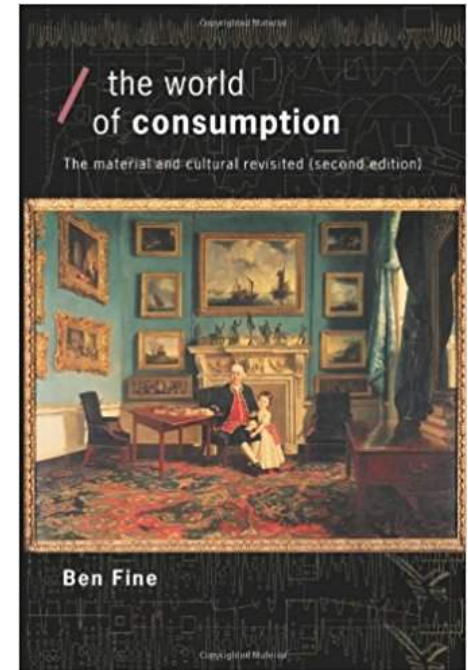


Heterodox economic analysis of supply chains: Systems of Provision

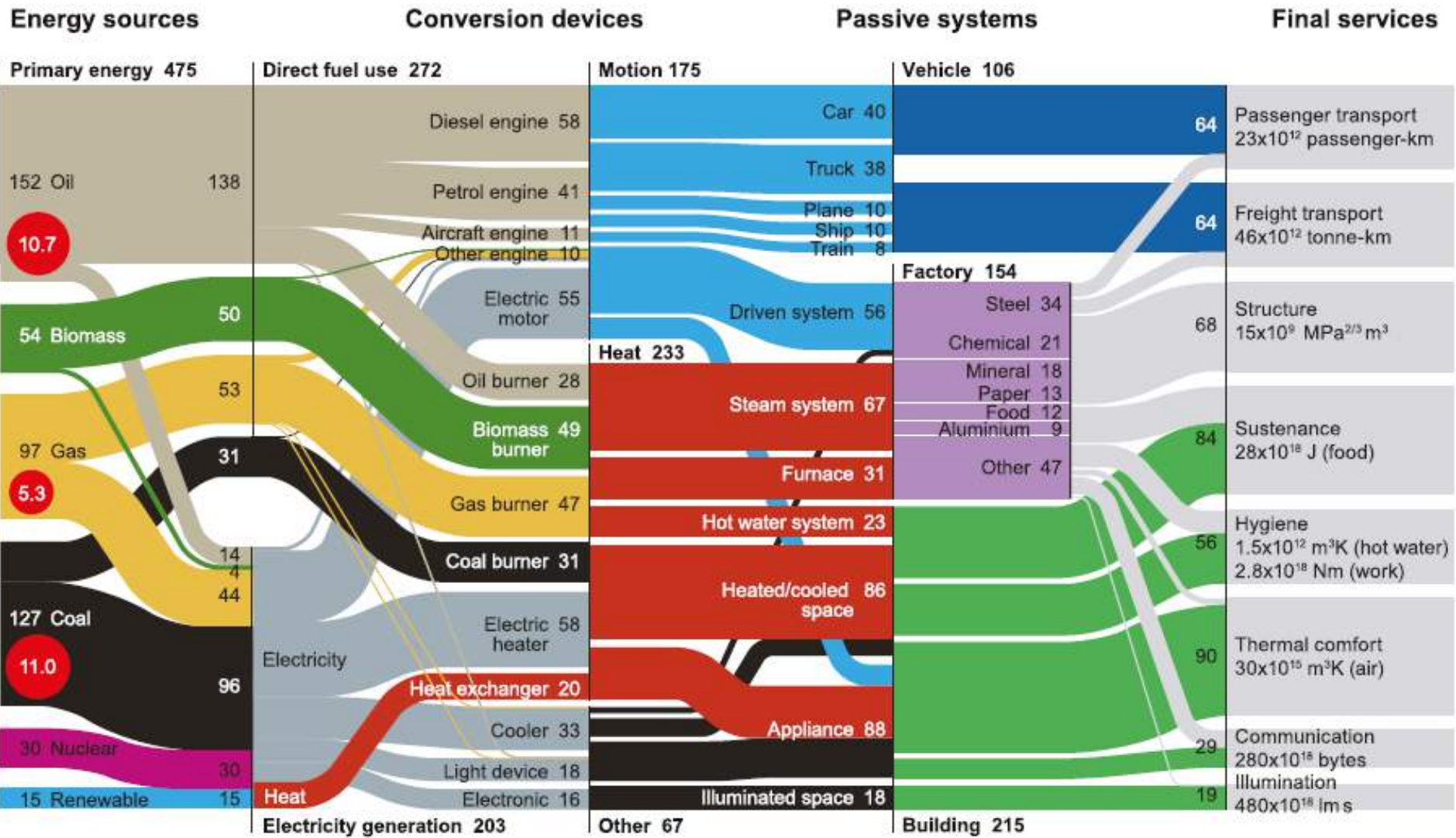
PROVI-
SIONING
SYSTEMS

Fine 1993, Fine & Leopold 2002

- **Structures:** governance rules and hierarchies of decision-making (key laws and regulations, regional scales of responsibility).
- **Processes:** stages of policy-making, formal procedures for decision-making, project development and communication between actors.
- **Agents:** the most important actors responsible for shaping provision.



ENERGY SERVICES



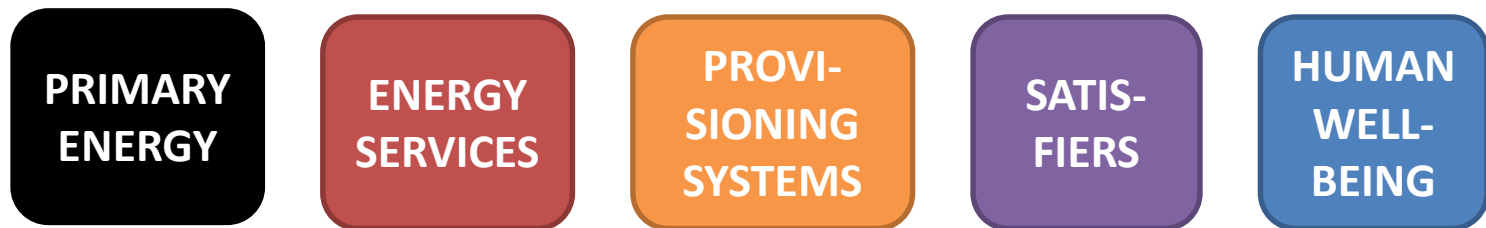
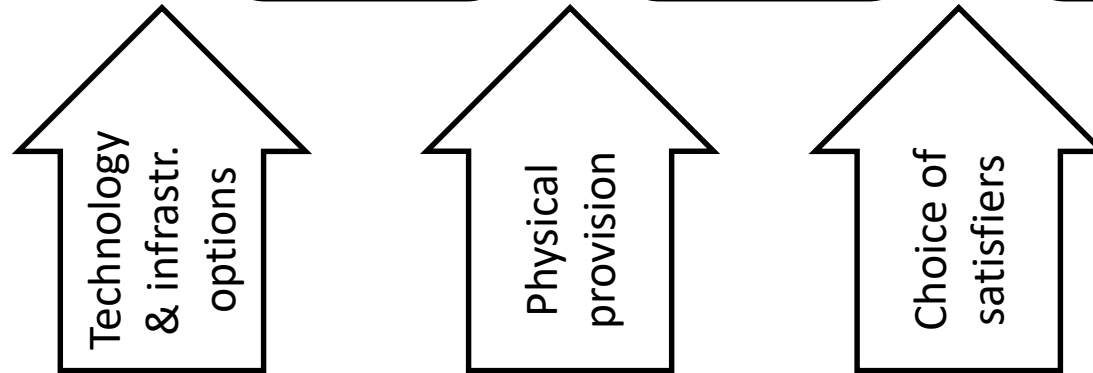
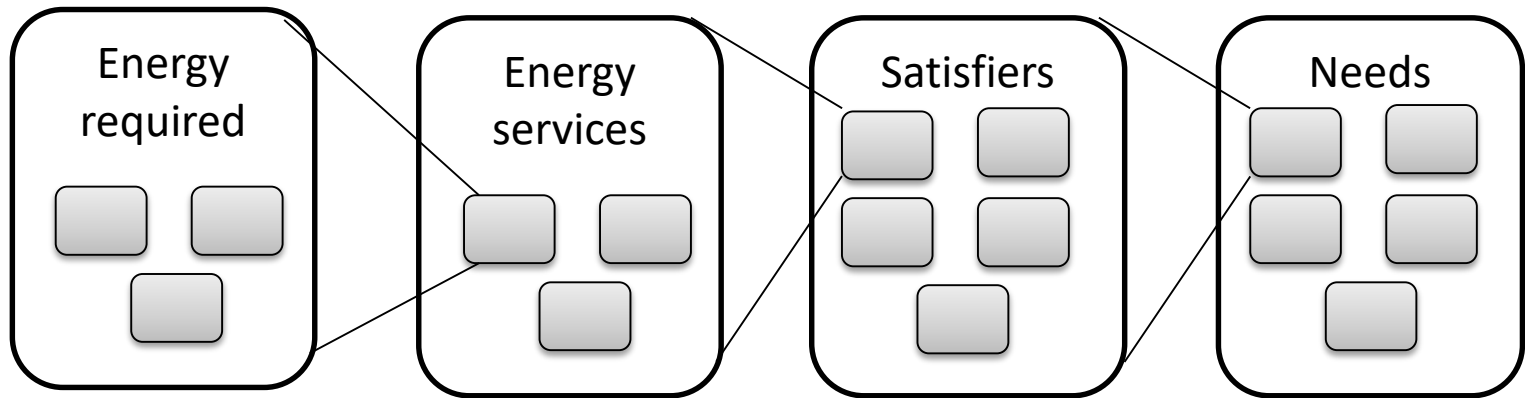
Annual global flow of energy in 2005, EJ [10^{18} joules]

Annual global direct carbon emissions in 2005, Gt CO₂ [10^9 tonnes of CO₂]

Cullen et al 2010

Connecting energy supply, physical provision, services, satisfiers & needs.

Living Well
Within
Limits [LiLi]



Decoupling
Opportunities



Putting the pieces together: The LiLi framework

Living Well
Within
Limits [LiLi]

BIOPHYSICAL INPUTS

Planetary Processes

Hydrological cycle,
Carbon cycle,
Solar radiation,
Biodiversity,
Nitrogen cycle,
Etc.

Natural Resources

Energy,
Materials,
Land,
Water,
Etc.

PROVISIONING SYSTEMS

Physical

Infrastructure,
Technology,
Land use,
Supply Chains.

Social

State,
Markets,
Communities,
Institutions,
Norms,
Culture,
Distribution.

SOCIAL OUTCOMES

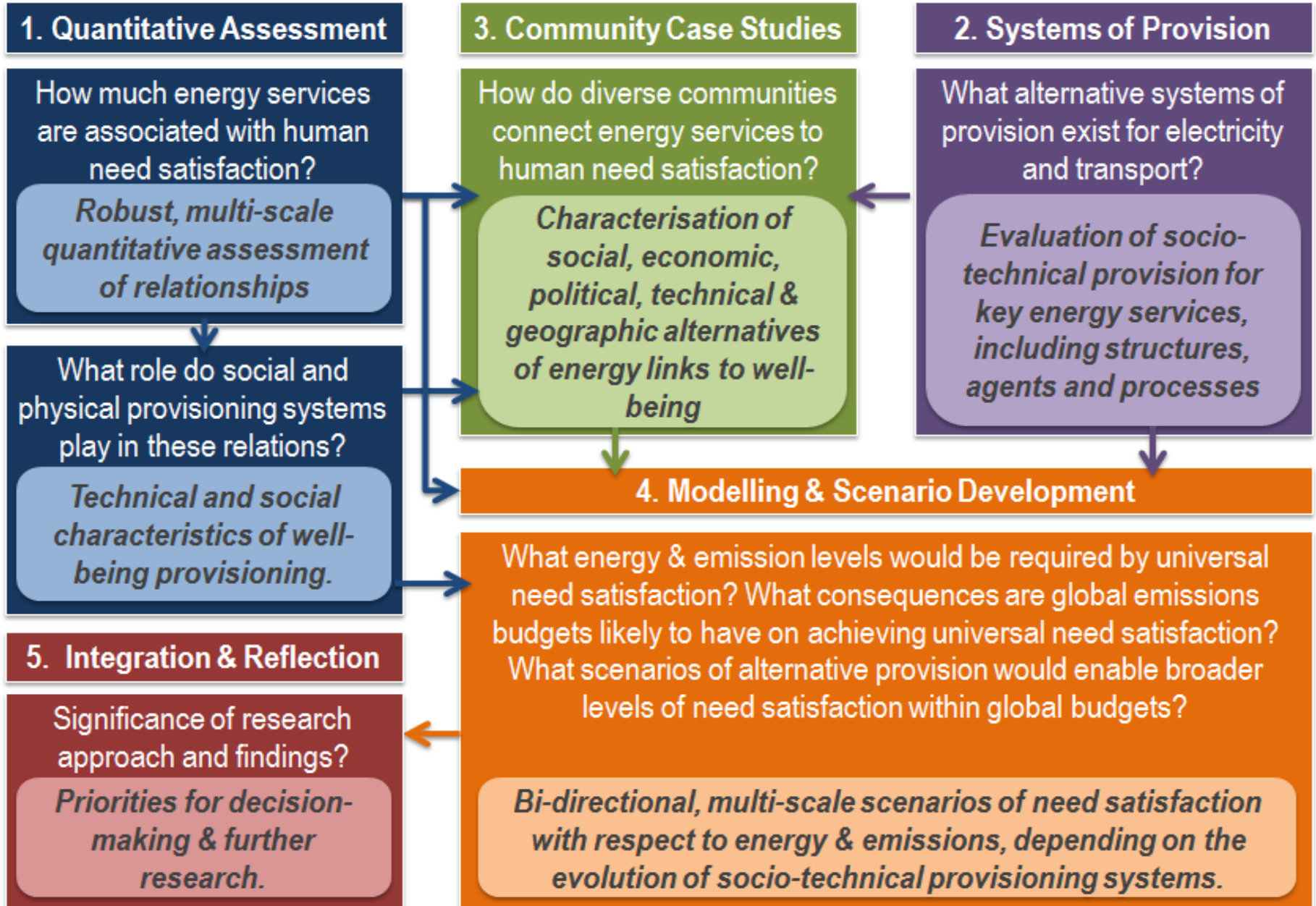
Need satisfiers

Food & water,
Housing,
Healthcare,
Education,
Relationships,
Economic security,
Physical safety,
Childhood safety,
Safe birth control &
childbearing.

Well-being

Physical &
mental health,
Autonomy of
agency,
Cognitive
understanding,
Social
participation,
Life
satisfaction,
Etc.

LiLi research questions and outcomes



LiLi subprojects: quantitative

	Top-down international	Income classes	Household-level (urban-rural)
Biophysical Inputs	Energy supply (primary-final-services); Corresponding GHG emissions; Including corrections for international trade.	For both income classes & household-levels: Direct energy use (residential & private vehicle); Indirect energy use (through expenditures); Associated GHG emissions.	
Physical Provisioning	Infrastructure networks & access; Diffusion of major appliances Climate and human settlement characteristics; Technological efficiency, energy services, exergy analysis.	Same data as for top-down, if available disaggregated by income.	Household location, climate & settlement characteristics; Ownership of appliances; Connectivity to key infrastructures
Social Provisioning	Government type, welfare state regimes Governance and institutional quality Equity, income, joblessness Political and cultural participation National health and education expenditures Prevalence of doctors and medical facilities Culture and religion.	Expenditure data on health, education and communication as a proxy for the availability & affordability of key social support systems..	Same data as for income classes; Employment status and sector; Household demographics Income, expenditure Political orientation Religion
Universal characteristics of need satisfiers	Food and water consumption & access; Infant mortality; Immunisation rates; Fertility and reproductive health; Years in school; Literacy; Economic and other deprivation; Indebtedness; Safety/crime.	Same data as for top-down, if available disaggregated by income.	Nutritional status; Water & sanitation access; Health status; Educational status; Economic security (debt, reliable income); Safety perception
Well-Being	Life expectancy; Mental health, Happiness ; Life satisfaction.	Same data as for top-down, if available.	Happiness & life satisfaction, if available in micro-data.

LiLi outcomes?

1. Changing terms of debate in energy studies & climate change
 - Moving from economic cost/benefit to human priorities.
2. Establishing some (more or less?) robust connections between disparate fields of research
 - Hopefully communicating convincingly and recruiting others along the way.
3. Obtaining research results that allow us to think & act in new ways about climate challenge.

Becoming involved: the manifesto

<https://wellplanetmanifesto.wordpress.com/>

- **Think big.** *We acknowledge the systemic and structural causes of social ecological problems and lack of ambition to investigate ‘the bigger picture’ in academia.*
- **Face power.** *We acknowledge the role of power in creating the social ecological problems we experience, and in obstructing solutions to them.*
- **Offer credible solutions.** *We seek visionary yet realistic alternatives.*

Thank you.

- Any questions?

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Manifesto:

<https://wellplanetmanifesto.wordpress.com/>





Living Well Within Limits [LiLi] factsheet

- Leverhulme Research Leadership Award
- Interdisciplinary: not within remit of any UK Research Council
- Website: <http://lili.leeds.ac.uk>
- Twitter: @liliproj
- Right now advertising 2 postdocs:
<http://lili.leeds.ac.uk/join-us/vacancies/>

LiLi Systems of Provision of Personal Transport & Residential Electricity

Living Well
Within
Limits [LiLi]

- Both final energy categories highly related to well-being, over decades
 - Steinberger et al 2017 (in preparation)
- Both connected to many types of human need satisfiers, and to larger political/infrastructure priorities & decisions.
 - Mattioli 2016
- Comparative SoP studies in case study countries can point to diversity & alternatives.

2. Systems of Provision

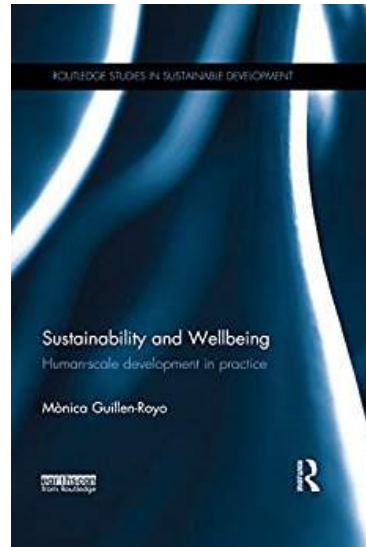
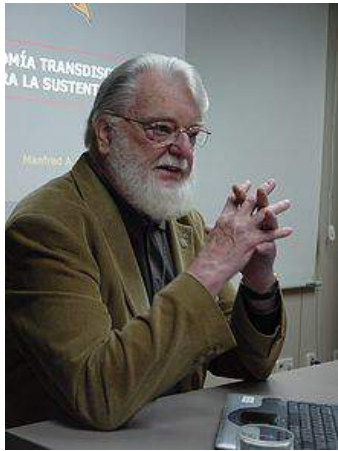
What alternative systems of provision exist for electricity and transport?

Evaluation of socio-technical provision for key energy services, including structures, agents and processes

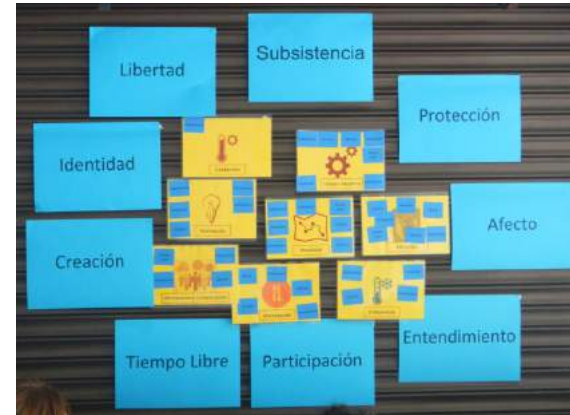
LiLi case studies: 6 countries, participatory methodology

Living Well Within Limits [LiLi]

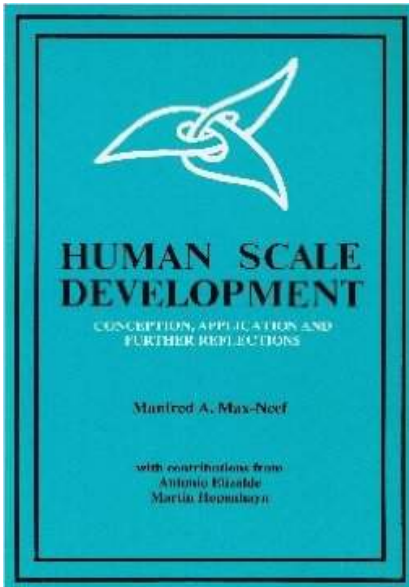
Manfred Max-Neef



Monica Guillen-Royo



Lina Brand Correa



3. Community Case Studies

How do diverse communities connect energy services to human need satisfaction?

Characterisation of social, economic, political, technical & geographic alternatives of energy links to well-being

LiLi modelling & scenarios

Living Well
Within
Limits [LiLi]

4. Modelling & Scenario Development

What energy & emission levels would be required by universal need satisfaction? What consequences are global emissions budgets likely to have on achieving universal need satisfaction? What scenarios of alternative provision would enable broader levels of need satisfaction within global budgets?

Bi-directional, multi-scale scenarios of need satisfaction with respect to energy & emissions, depending on the evolution of socio-technical provisioning systems.

Approaches to human well-being

HUMAN
WELL-
BEING

(Sort of) following Gasper 2004:

1. Pleasure or satisfaction (Hedonic)

- a. **Objective:** Economic utility maximisation, “preferences”, satisfaction of wants & desires
- b. **Subjective:** Balance of positive & negative feelings (maximise positive, minimise negative): **happiness**
- c. **Subjective:** Life Satisfaction (can measure Eudaimonic as well)

2. Opulence (Consumerist Hedonic)

- **Objective:** Material living standards, consumption.

3. Human Needs (Eudaimonic)

- **Objective:** theorised, **participatory** and/or politically determined (Doyal & Gough 1991, Max-Neef 1991)

4. Capabilities (Eudaimonic)

- **Objective:** opportunities and freedom (Sen & Nussbaum)

Confusing mix
of theory &
method &
disciplinary
perspectives.

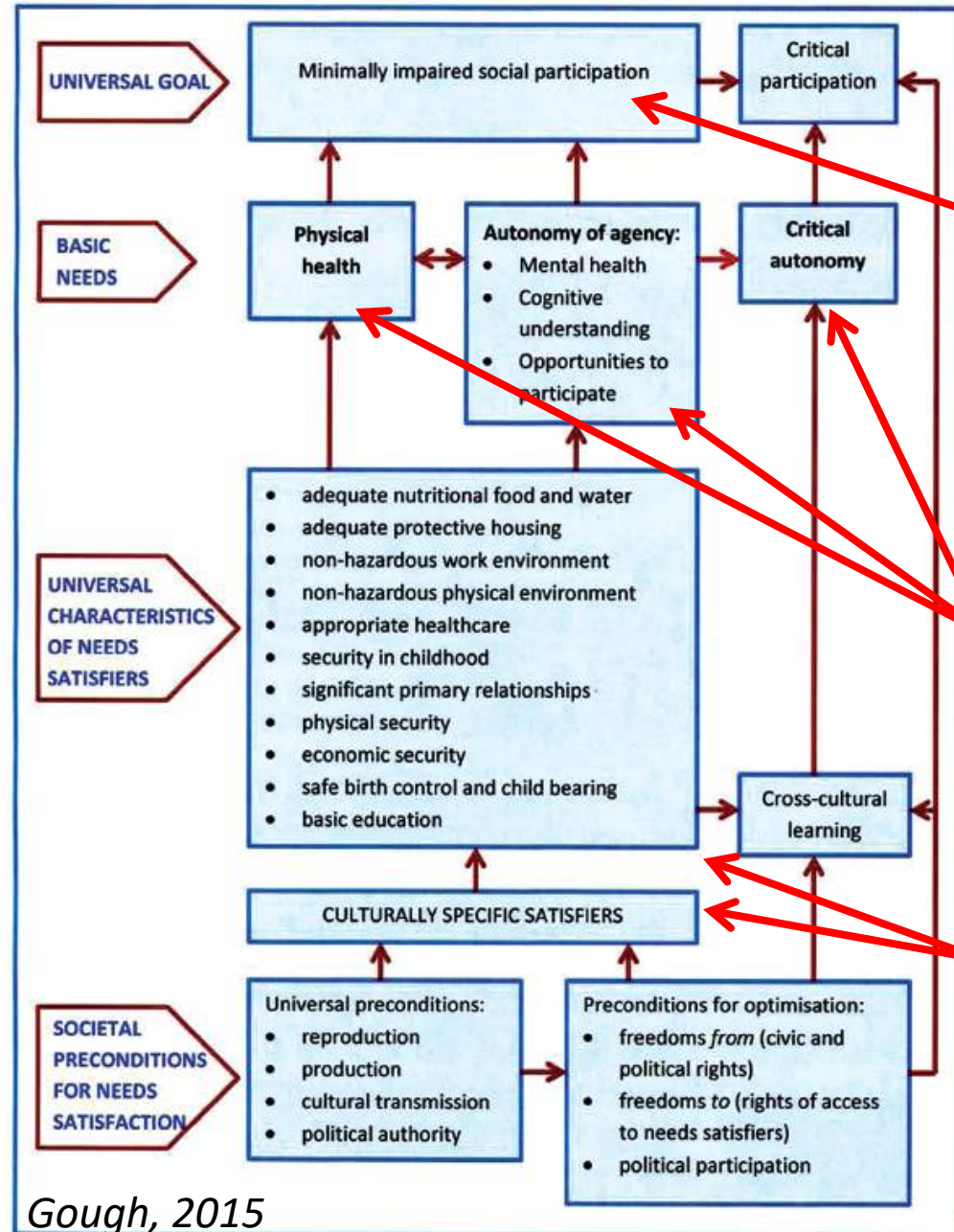
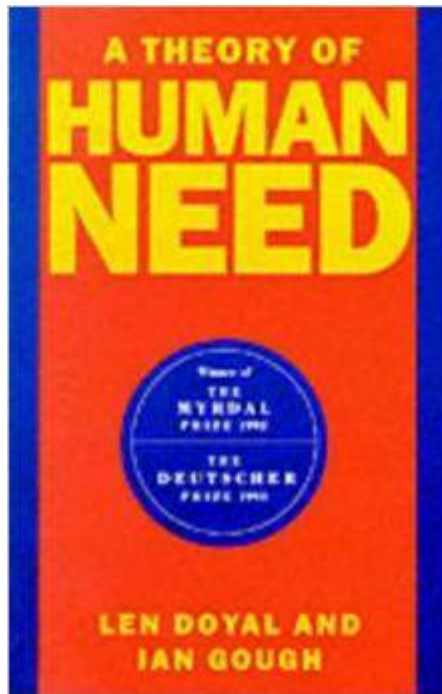


*Needs approaches are the most promising for sustainability, because they allow **intergenerational comparisons and satiability.***

~ J O'Neill 2012

Human Need framework: strong sust.

HUMAN WELL-BEING



Negatively defined (satiabile), social goal.

Basic Needs to allow that goal.

Satisfiers.

Gough, 2015

Theory matters: social vs individual assessment of well-being

HUMAN
WELL-
BEING

	Most suited to sustainability research, social focus	Dominant in policy & research, individual focus
Well-being assessment	Eudaimonic (flourishing)	Hedonic (maximising pleasure, minimising pain)
Objective and/or non-individual	<ul style="list-style-type: none"> ➤ Outcomes: health, education, political participation, etc. ➤ Means (satisfiers): public expenditure budgets on health & education, available infrastructure and vital services (hospitals, schools, trained doctors and teachers, etc.). ➤ Community participatory method: Max-Neef's Human-Scale Development matrix of needs and satisfiers. 	<ul style="list-style-type: none"> ➤ Income & expenditure studies (well-being as maximising utility through consumption, as making choices given budgetary constraints).
Individual & subjective		<ul style="list-style-type: none"> ➤ Happiness ➤ Evaluative assessment (satisfaction with life)

Satisfiers

SATIS-
FIERS

Common concept across Human Needs approaches.

Max-Neef human-scale development matrix

Needs:	BEING (personal or collective attributes)	HAVING (institutions, norms, tools)	DOING (personal or collective action)	INTERACTING (spaces or atmospheres)
Subsistence				
Protection				
Affection				
Understanding				
Participation				
Idleness				
Creation				
Identity				
Freedom				

Not the only type
of need satisfier!

SATISFIERS

Analysing satisfiers: help needed

PROVI-
SIONING
SYSTEMS

Satisfiers sound
like a great
analytic tool!
I wonder what
they consist of ...

[5 minutes of
literature search
later...] I wonder
what they *don't*
consist of ???



Satisfiers aspects:

- Both social and physical;
- Economic and household level;
- Welfare state, political system, environment, culture, religion;
- Etc Etc Etc.

So what approach can
we use to study them?

Provisioning systems = Core mission of heterodox economics

- “**Aristotle's oikonomy** included the study and practice of diverse domains It included as well the discussion of meaning and value, of ethics and aesthetics, as an integral part of this ‘**art of living and living well.**’”
Cruz, Stahel & Max-Neef 2009
 - “... economics is the study of the on-going economic process that **provides the flow of goods and services required by society to meet the needs** of those who participate in its activities ... **[Economics is] the science of social provisioning.**” *Gruchy 1987*
- “[The economy is] an instituted **process of interaction between man and his environment, which results in a continuous supply of want-satisfying material means** . . . The human economy, then, is embedded and enmeshed in institutions, economic and noneconomic. **The inclusion of the noneconomic is vital.** For religion or government may be as important for the structure and functioning of the economy as monetary institutions or the availability of tools and machines themselves that lighten the toil of labor.” *Polanyi 1968*

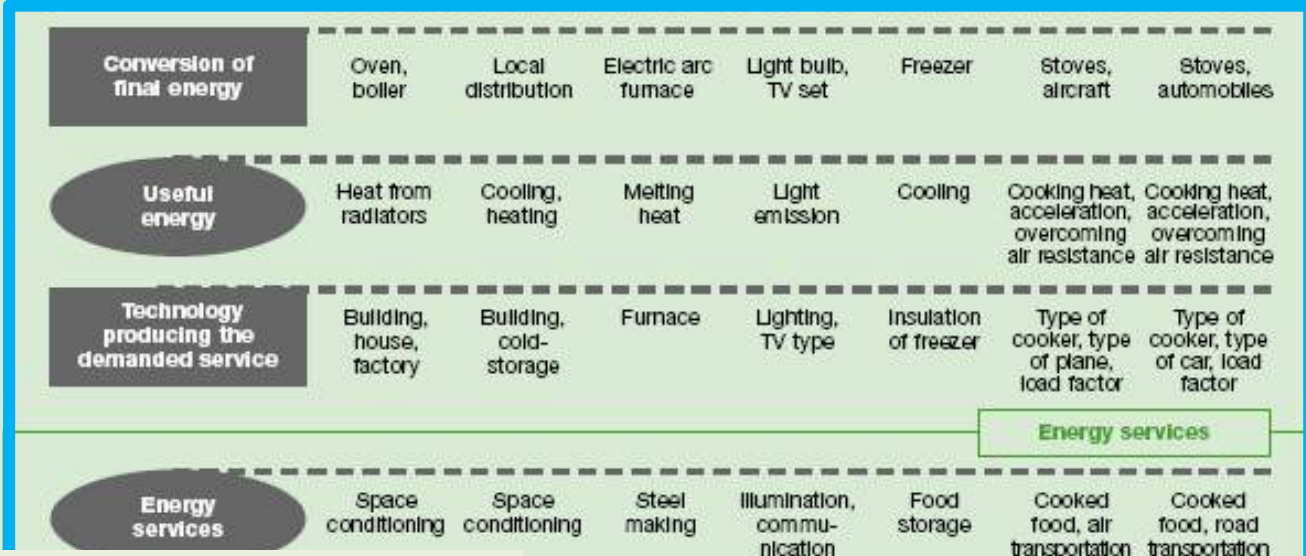
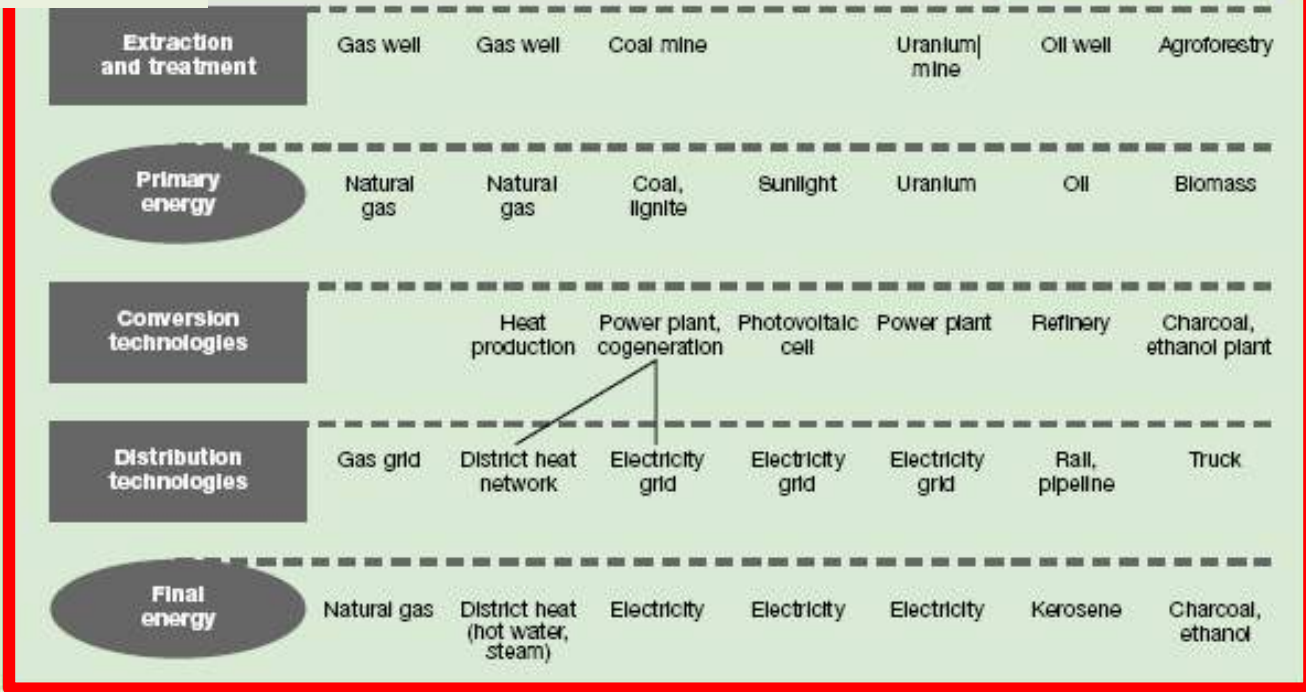
Physical provision: Energy Services

ENERGY SECTOR

Energy system

Energy sector

ENERGY SERVICES

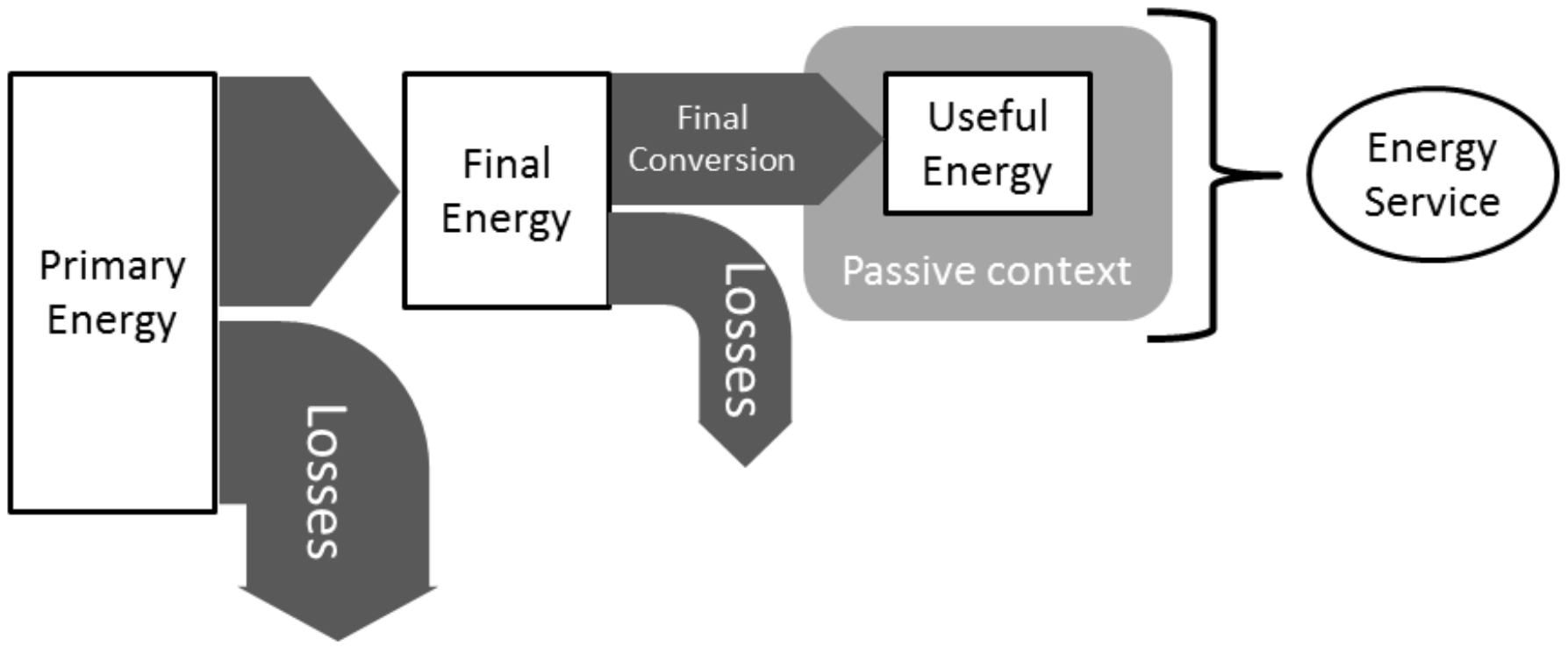


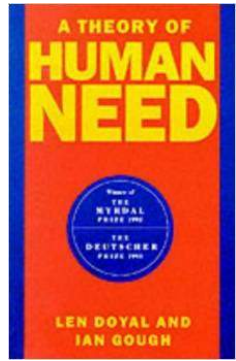
END USER AND PASSIVE SYSTEM

Source: Jochem et al 2000

Physical provision: energy services

ENERGY SERVICES





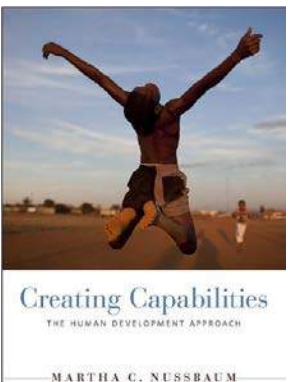
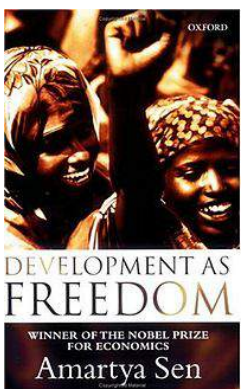
Universal human needs
Maslow, Max-Neef, Doyal & Gough.
Culturally-specific **satisfiers**.

Preference satisfaction
Bentham. Neoclassical economics.
Utility function maximising through
consumption of goods & services.



Capabilities
Human development
Amartya Sen, Martha Nussbaum
Opportunities and freedom.
Functioning within society.

Happiness 😊
Kahneman, Layard
Subjective psychological
assessment.

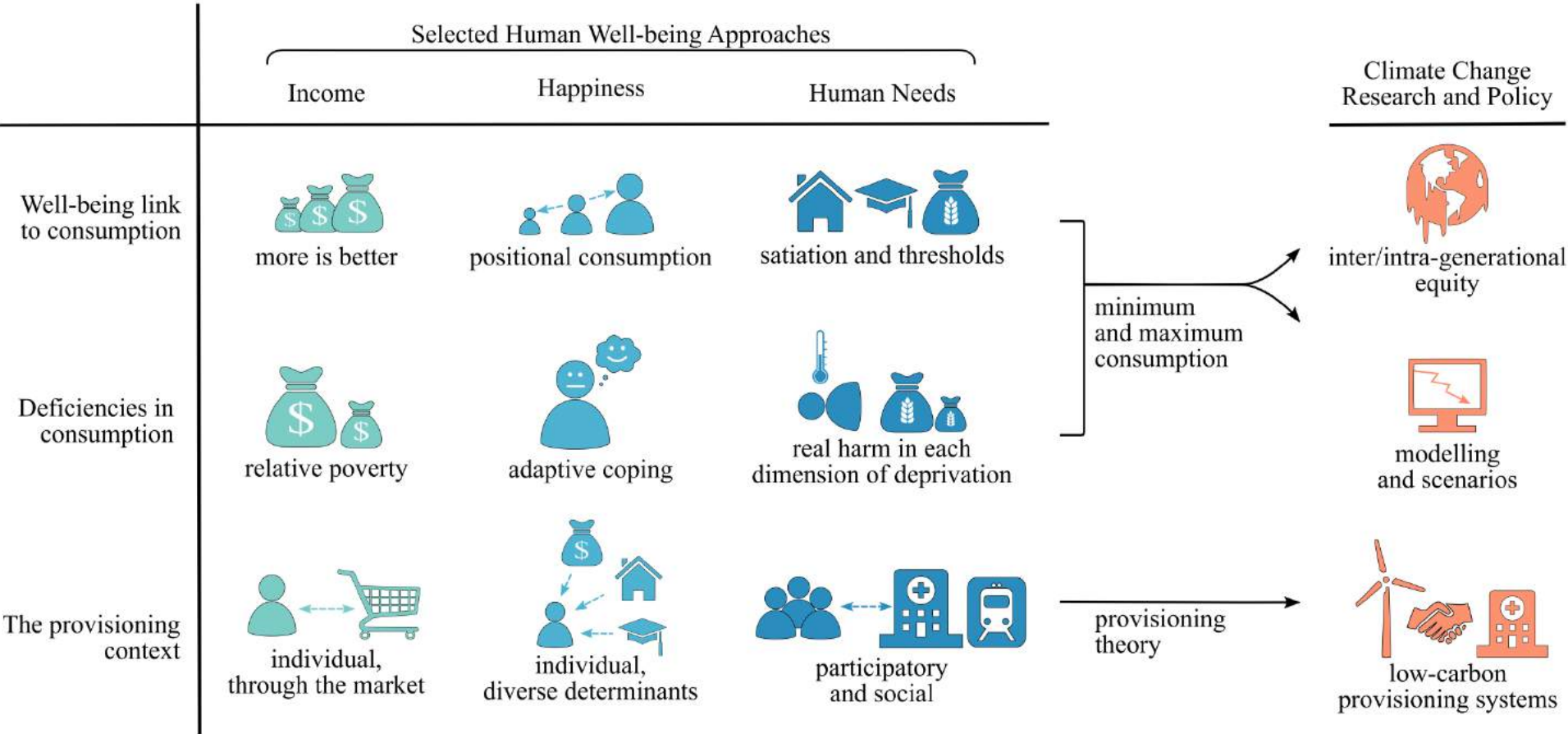


Eudaimonic
Flourishing
Aristotle

Hedonic
Pleasure principle
Epicurus

Theory matters: climate change mitigation interlude

HUMAN WELL-BEING



Lamb & Steinberger, 2017, in review

Sustainability trilemma: can only have 2/3

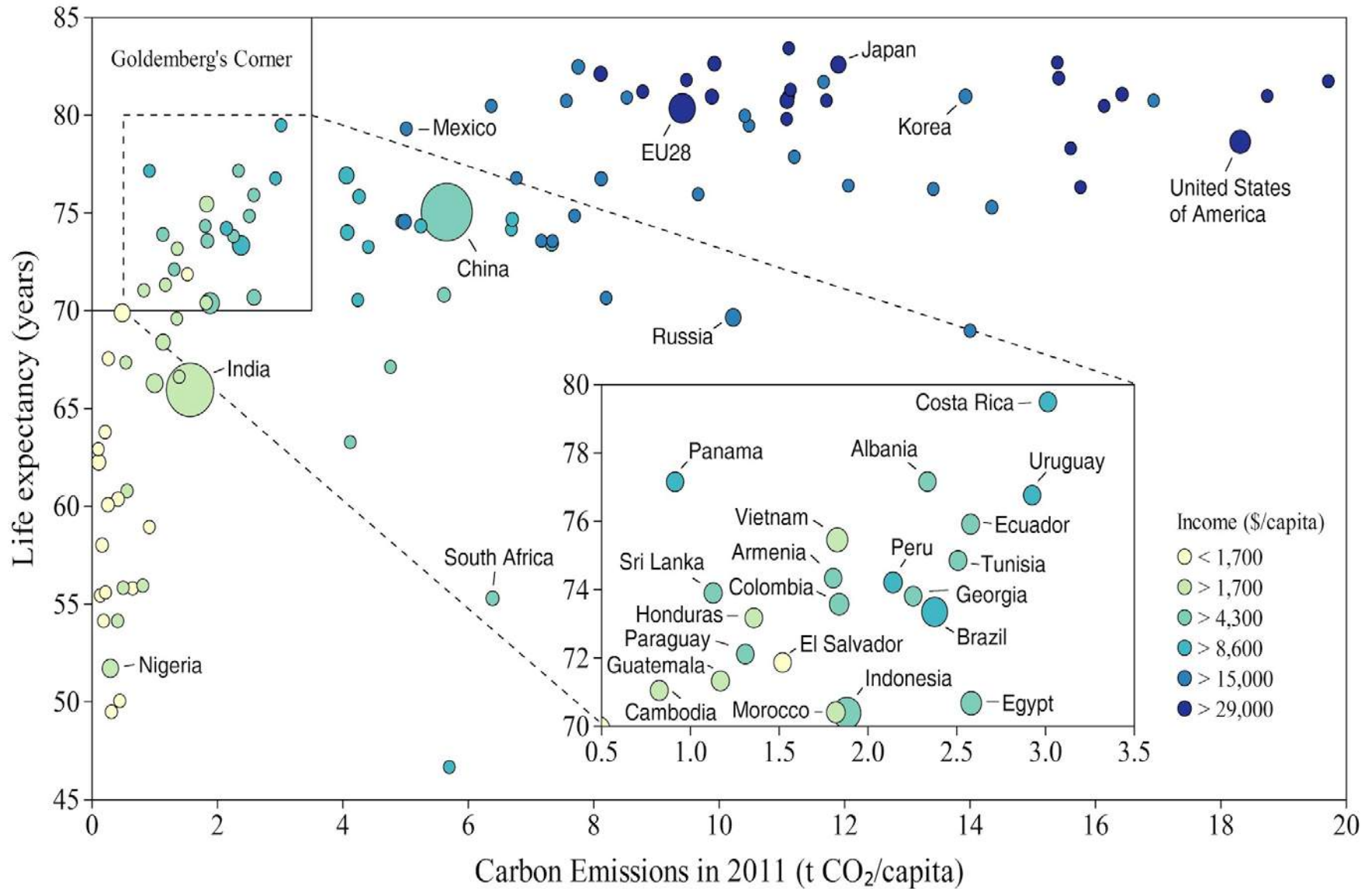


Figure W. Lamb 2015 based on Steinberger et al 2012